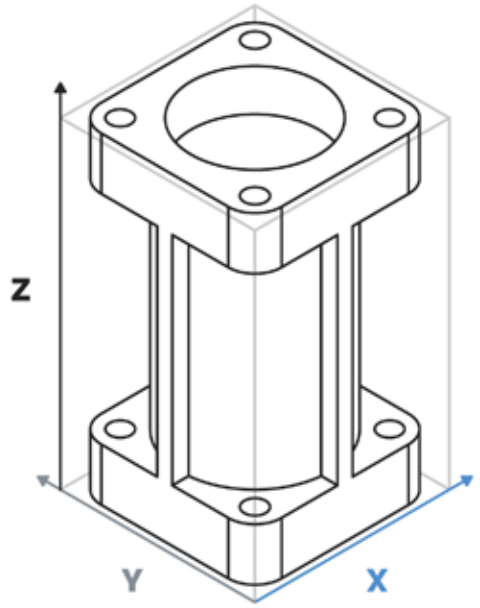
SLS

Design Guidelines

Reference Dimensions

Maximum part size

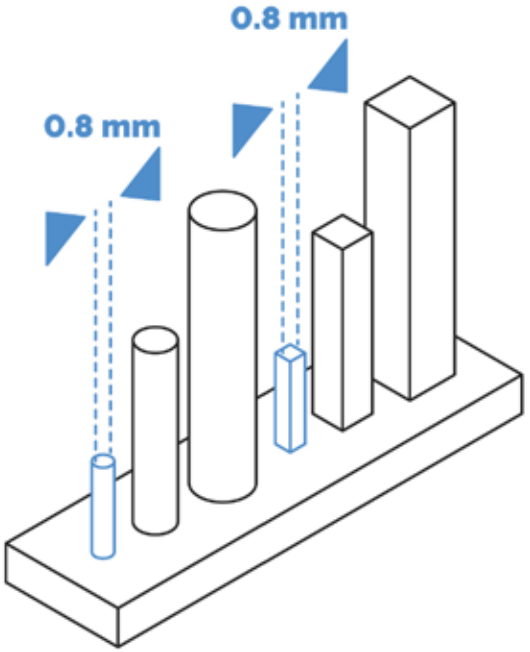
Maximum dimensions considering the production volume. Parts, even within the range shown, must be analyzed due to possible limiting geometric details.



	Width	Length	Height
EON PA12	150 mm	150 mm	280 mm
EON PA12-GF			

Minimum Diameter/Side (Pillars)

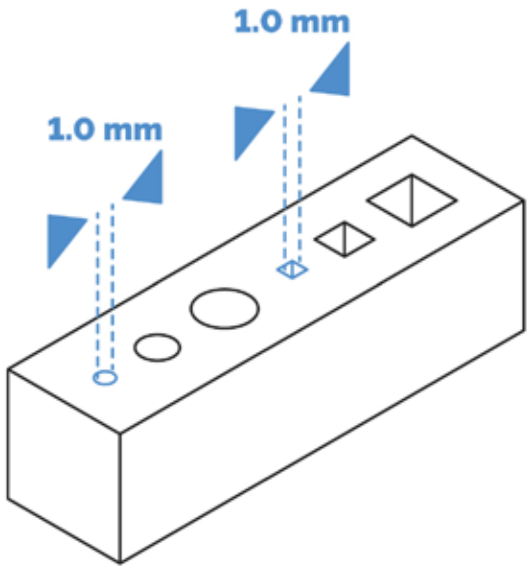
The minimum size of the pillar is the smallest dimension that can be successfully printed. The height of the pillar in relation to its dimension is a variable that must also be controlled in order to prevent this structure from becoming too weak. Therefore, a pillar should not be higher than five times the dimension of the pillar base.



Note: In order to avoid brittle areas when post-processing the parts, at these base-pillar connection locations, add a fillet or a chamfer.

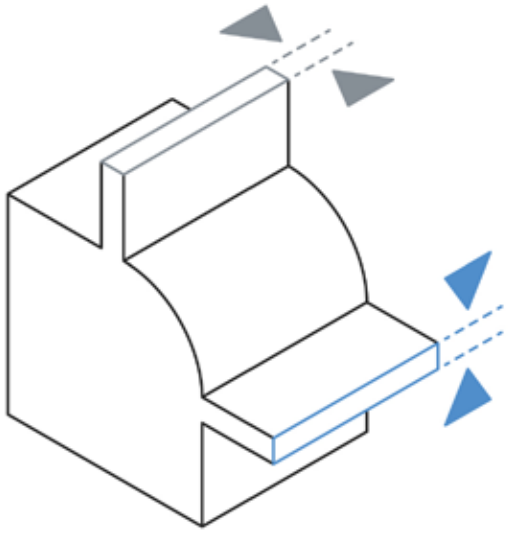
Minimum Diameter/Side (Holes)

Holes with a diameter of less than 1.0 mm may close during printing. The same is true for square holes with sides less than 1.0 mm.



Minimum unsupported walls thickness

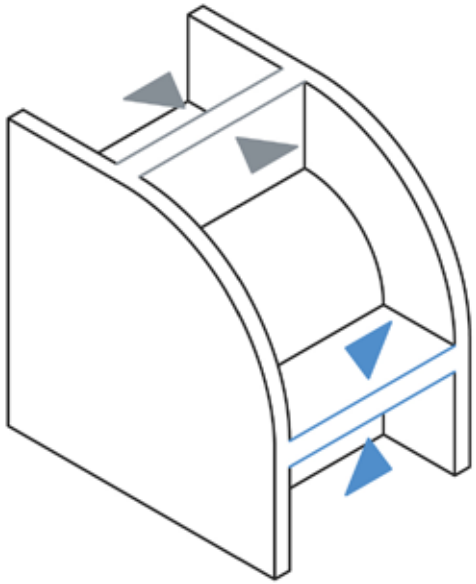
The minimum unsupported wall thickness is the minimum thickness required for a wall supported on less than two sides. Walls that are too thin may warp or separate from the model.



	Thickness
Vertical Walls	0,6 mm
Horizontal Walls	0,3 mm

Minimum supported walls thickness

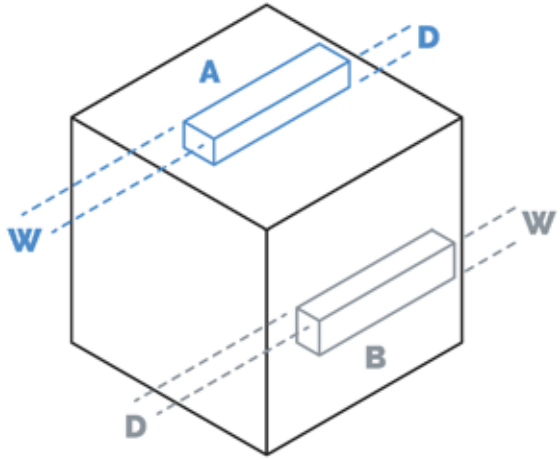
The minimum supported wall thickness is the minimum thickness required for a wall supported on two or more sides. Walls that are too thin may warp or separate from the model.



	Thickness
Vertical Walls	0,6 mm
Horizontal Walls	0,3 mm

Minimum embossed features

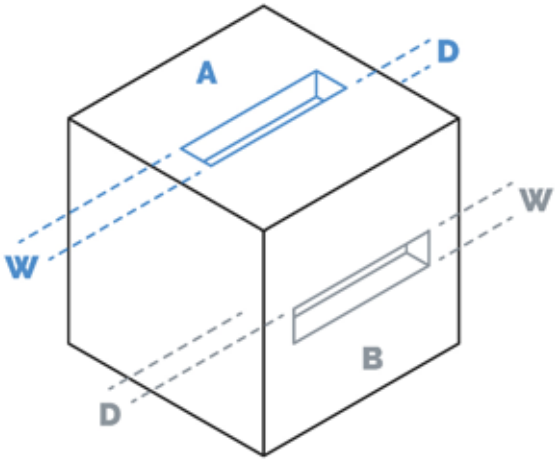
Embossed details are extruded from the faces of the model. Too small embosses can become almost or completely unnoticeable. When this feature is associated with a font (text or numerical elements), use a bold font as it enhances the results.



	Depth	Width
A) Horizontal Faces	0,15 mm	0,35 mm
B) Vertical Faces	0,35 mm	0,40 mm

Minimum engraved features

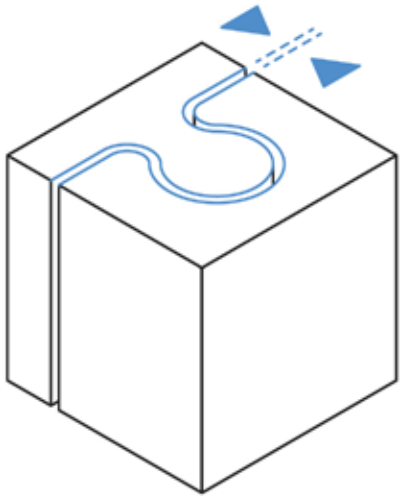
Engraved details are cuts made from the surface of the model. Details that are too small can become almost or completely unnoticeable. When this cut is associated with a font (text or numerical elements), use a bold font as it enhances the results.



	Depth	Width
A) Horizontal Faces	0,10 mm	0,30 mm
B) Vertical Faces	0,15 mm	0,35 mm

Minimum assembly tolerances

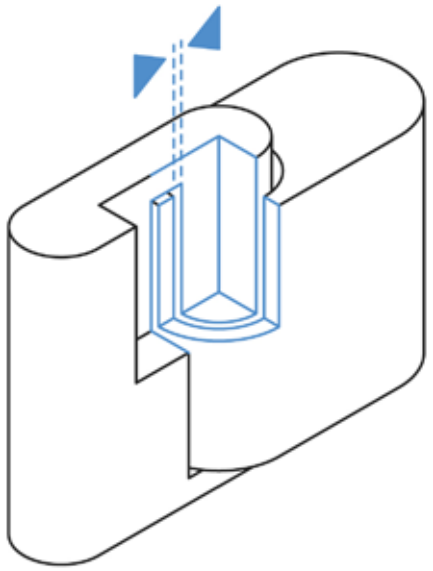
Leave a slight gap between the parts that are printed and that will have some connection between them, such as gaskets or gears.



Contact area less than or equal to 20 mm²	0,2 mm
Contact area greater than 20 mm²	0,4 mm

Integrated assembly tolerances

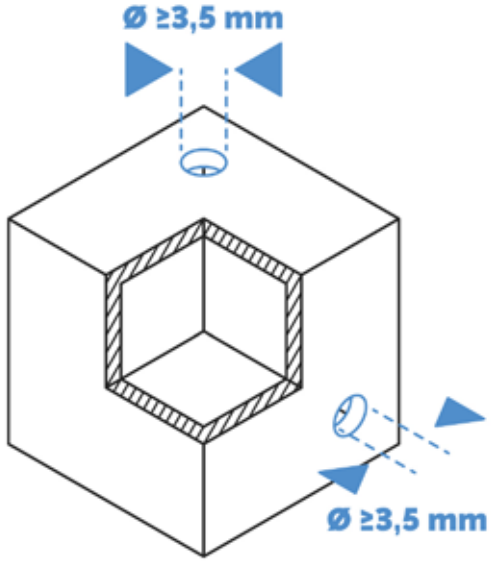
For parts that will be printed together in an assembly, free space must be left to prevent the parts from merging together.



Contact area less than or equal to 20 mm²	0,3 mm
Contact area greater than 20 mm²	0,6 mm

Escape holes

Closed cavities do not allow the non-sintered powder to be extracted from inside, without exhaust holes. For best results, include at least 2 escape holes in the cavity. These holes should have a diameter of 3.5 mm or more.



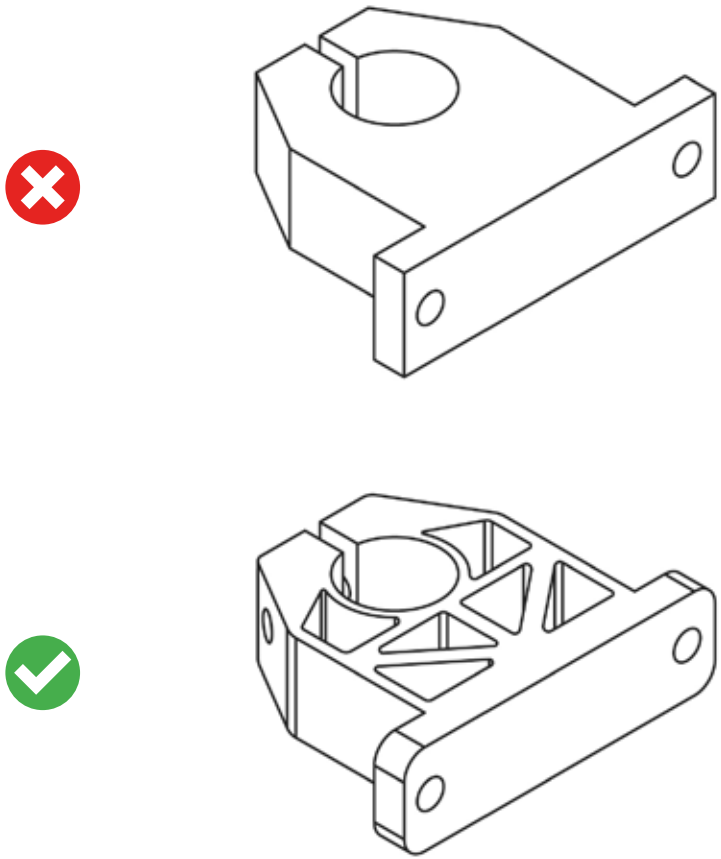
SLS

Design Guidelines

Design Considerations

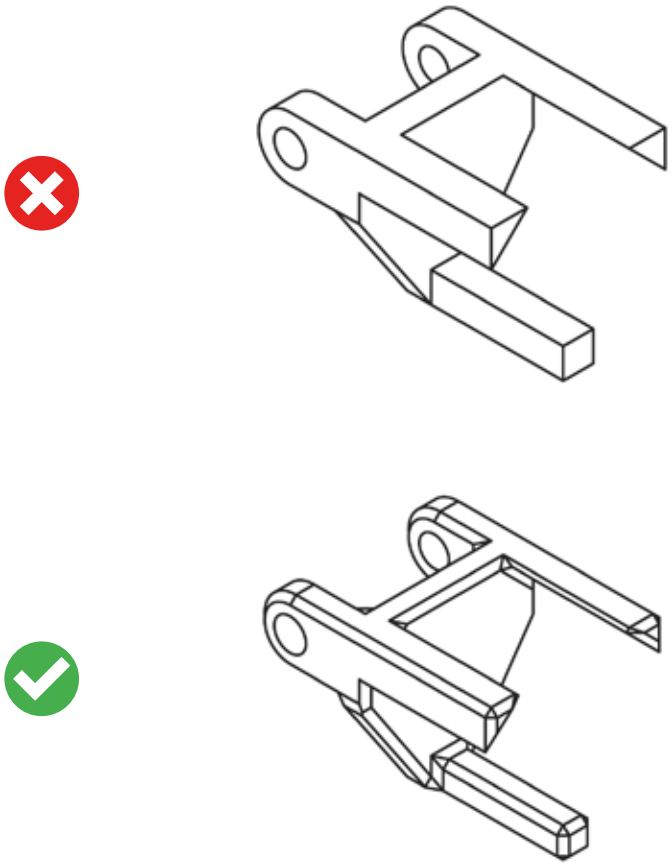
Maintaining uniform thickness

Whenever possible, keep the thickness of the parts relatively consistent. This will alleviate issues related to warping.



Reducing stress concentrations

Parts can experience stress accumulation in areas associated with abrupt cross-section changes, such as thin extrusions from thick bases. Opting for gradual transitions (through fillets or chamfers) significantly reduces stress build-up in these areas.



Controlling dimensional accuracy

Certain parts, due to their geometry, may be more susceptible to warping. In order to mitigate this problem, ribs and/or inclinations should be used so that the dimensional accuracy of the part is guaranteed.